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2,880,543

## PISTOL

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3 Claims. (Cl. 42—1)

The present invention relates to pistols, and more particularly to that type of pistol which operates to discharge an incapacitating fluid, such as tear gas. Preferably the pistol is in the shape of and simulates a fountain pen.

The gear gas is contained in a cartridge which is placed in the pistol for firing or discharging. Such cartridge has an outer shape similar to that of a firearm cartridge, or one firing a bullet, and the pistol may therefore offer a temptation to fire a cartridge having a bullet therein.

An object of the invention is to provide a pistol of the foregoing character in which it is impossible effectively to fire a firearm cartridge.

A more specific object is to provide a pistol of the character noted, in which, in an attempt to fire a firearm cartridge, the gas intended for propelling the bullet is dissipated in such a way as to be ineffective for so propelling the bullet.

A further object is to provide a pistol of the foregoing character, in which, although the propelling gas for a bullet is harmlessly dissipated, a cartridge of intended kind, e.g., of tear gas, can be utilized and discharged in a normal manner.

Other objects and advantages of the invention will appear from the following detail description taken in conjunction with the accompanying drawing, in which:

Figure 1 is a plan view of a pistol embodying the invention;

Fig. 2 is a longitudinal sectional view through the pistol, the barrel of the pistol being shown with a tear gas cartridge therein;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is a plan view showing the barrel of the pistol removed from the stock;

Fig. 6 is a view of the pistol oriented according to Fig. 1 and showing the barrel in section and with a bullet-equipped firearm cartridge therein, and

Fig. 7 is a view similar to Fig. 6, but after firing of the firearm cartridge and resultant rupture of the barrel.

The pistol shown in the accompanying drawing includes certain construction disclosed in Reissue Patent No. 17,813 granted to me on September 23, 1930, and reference may be made to that patent for additional detailed description of any of the construction of the present pistol common to the structure of that patent.

The pistol includes two main parts, namely a stock 10 and a barrel 12. These two parts are detachably secured together for insertion of a cartridge 14 (Fig. 2) of the desired type, namely for discharging an incapacitating fluid such as tear gas.

The pistol, as shown more clearly in Fig. 1, is generally in the shape of a fountain pen and is intended to simulate a fountain pen so as to appear as such when carried in an outer pocket. The stock 10 may be of any suitable material such as a metal having the desired strength, and

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has an internally threaded front end indicated at 16 for threadedly receiving the barrel 12. A breech block 18 is threaded in the front end of the stock and positioned rearwardly or inwardly from the front end edge thereof 5 and thus inwardly of the barrel.

The cartridge is fired by means of a firing pin 20 projectable through a central aperture in the breech block and formed on the front end of a plunger 22 having a socket or recess 24 in its rear end. The recess 24 receives 10 the forward end of a compression spring 26, the rear end of which is fitted in a cooperating recess 28 in a cap 30 secured in the rear end of the stock by suitable means such as interfitting screw threads. If desired, a pocket clip 32 may be secured at the rear end of the 15 stock as by a band on the clip gripped between a shoulder on the cap and the rear end of the stock. The plunger 22 together with the firing pin 20 is actuated by manual manipulation by means of a stud 34. The latter is secured in the plunger and rides or slides in a longitudinal 20 slot 36 in the stock. The head of the stud is exposed for engagement by the thumb, and upon retraction of the stud against the action of the spring 26 and subsequent release, the plunger and firing pin are snapped forwards, whereupon the firing pin fires the cartridge.

The barrel 12 is of tubular construction and is also of 25 a metal possessing relatively great strength so as to withstand the pressures developed upon discharge of the cartridge 14. As noted above, the cartridge 14 is of the type for discharging a fluid such as tear gas, and in itself 30 is of conventional or standard construction. It includes a tubular shell 38 and a head 40 having a flange of greater diameter than the shell. The barrel has a reduced, rear end portion 42 that is externally threaded, and screw threaded into the forward end of the stock 35 10, and upon threading therein a predetermined extent, it grips the head of the cartridge between itself and the breech block 18. If desired the rear end of the threaded rear end portion 42 may be of reduced diameter so as to form on the barrel a rearwardly facing shoulder 44 for engaging the forward end edge of the stock. The portion of 40 the stock surrounding the reduced rear end portion 42 of the barrel imparts strength to the latter for preventing breakage, as will be explained in detail below.

In order to prevent the effective firing of a firearm 45 cartridge of the type that discharges a projectile or bullet, the barrel is provided with a weakened portion so arranged and disposed as to effect rupture of the barrel upon discharge of such a firearm cartridge, if an attempt were made to fire the latter in the pistol. To this end the 50 barrel 12 is provided with a longitudinally extending groove 46 in its outer surface. This groove is of substantial length with respect to the length of the barrel and is disposed preferably between the ends thereof. The groove is also narrow, and of substantial depth relatively 55 to the thickness of the side wall of the barrel. It will be noted that the groove does not extend through the wall of the barrel, and the side wall of the barrel therefore is continuously imperforate in its original condition before rupture. The inner surface of the barrel is of 60 uniform character circumferentially and is preferably of truly cylindrical shape. If desired, however, the forward end of the inner surface, or muzzle portion, may be flared outwardly, as disclosed in the above-mentioned reissue patent. Preferably the forward end portion or muzzle 65 portion 48 is tapered forwardly on its outer surface in order to provide a finished appearance and also to provide a relatively weakened portion of the barrel that ruptures or splits more readily than the rear or inner end portion 70 of the barrel.

Since a pistol of the above general character has certain characteristics in common with a fire arm pistol there

may be a temptation to fire a firearm cartridge therein, and so long as such a cartridge can be fitted in the barrel of the pistol and the firing pin made to strike the cap thereof, the cartridge can be fired. The construction of the present invention renders it impossible effectively to fire such a firearm cartridge. Figs. 6 and 7 illustrate the same pistol described above but with a firearm cartridge 50 therein. It will be noted that the cartridge 50 is of external dimensions similar to those of the cartridge 14, and has a bullet or projectile 52. In the event a cartridge such as the cartridge 50 is fired, the pressure developed in the cartridge is substantially greater than the pressure developed in the cartridge 14. This pressure ruptures or splits the barrel at the weakened portion resulting from the formation of the groove 46. As a result the pressure is dissipated from its intended direction of application, namely it is expelled sideways through the ruptured barrel and the bullet, while it may be projected forwardly out of the barrel, is so projected only as extremely short distance, such as a few feet, and then falls with no lethal effect on the intended target.

The floor or bottom of the groove 46 is relatively thin, as will be noted from the sectional views, and this portion is subject to ready rupture or splitting by the pressure developed within the barrel when a regular firearm cartridge is fired in the barrel of the pistol. The portion 48 on the muzzle of the barrel is of less wall thickness than the remainder of the ungrooved portion of the barrel and while it is of greater thickness than the floor of the groove and splits after the grooved portion splits, it splits before the portion rearwardly of the groove, so that the barrel upon rupture opens up to a condition similar to that of Fig. 7. The latter figure is an exact drawing of a barrel and cartridge ruptured or split due to an attempted firing of a bullet-equipped firearm cartridge. The rear portion of the barrel is relatively strong and will rupture only after successive rupture of the central and front end portions. Because of the abrupt change in thickness of the barrel at the shoulder 44, the barrel may be sheared clean at this point, since the stock, because it surrounds the reduced portion 42 of the barrel, imparts greater strength to the latter and prevents breakage thereof and causes the shearing effect mentioned. As a result, the rear end portion 42 of the barrel is not distorted and it may be readily threaded out of the stock. A new barrel may then be threaded into the stock.

The barrel, notwithstanding the groove 46, is imperforate throughout its side wall in its original condition, and is capable of withstanding the pressure developed by the tear gas cartridge, whereby the tear gas is all discharged out of the forward end of the barrel as intended.

While I have disclosed herein a preferred embodiments of the invention, it will be understood that changes may be made therein within the spirit and scope of the appended claims.

I claim:

1. As a new article of manufacture, a pistol adapted primarily to discharge an incapacitating gas and comprising a hollow stock, an elongated one-piece cylindrical

imperforate metal barrel having one end thereof open and its other end connected removably to the stock and shaped releasably to retain either a conventional gas cartridge which when fired develops comparatively low pressure and a similarly dimensioned bullet-equipped firearm cartridge which when fired develops comparatively high pressure, and a spring-biased firing pin mounted slidably in the stock and adapted when retracted and then released while a cartridge is in the barrel to fire the cartridge, said barrel presenting a smooth unobstructed cylindrical bore, the metal of said barrel being relieved along a longitudinal region of the barrel to thus weaken the barrel circumferentially along said region so that the barrel will rupture therealong when subjected internally to the explosive force of a bullet-equipped firearm cartridge, whereby the bullet will be displaced laterally of the ruptured barrel in the radial direction of the relieved longitudinal region.

2. As a new article of manufacture, a piston adapted primarily to discharge an incapacitating gas and comprising a hollow stock, an elongated one-piece imperforate metal barrel presenting a smooth unobstructed cylindrical metal bore, said barrel having one end thereof open and its other end connected removably to the stock and shaped releasably to retain either a conventional gas cartridge which when fired develops comparatively low pressure and a similarly dimensioned bullet-equipped firearm cartridge which when fired develops comparatively high pressure, and a spring-biased firing pin mounted slidably in the stock and adapted when retracted and then released while a cartridge is in the barrel to fire the cartridge, the outer surface of said barrel being formed with a straight axially extending uninterrupted groove in the outer surface thereof substantially coextensive with the longitudinal extent of the barrel, the depth of said groove being sufficiently great as to weaken the barrel circumferentially along the linear extent of the groove on one side of the barrel, the extent to which the barrel is thus weakened being such that the barrel will withstand the low pressure explosive force of a conventional gas cartridge but will rupture in the vicinity of said groove when subjected internally to the explosive force of a bullet-equipped cartridge, whereby the bullet will be displaced laterally of the ruptured barrel in the radial direction of the axially extending groove.

3. As a new article of manufacture, a pistol as set forth in claim 2 wherein the open end of the barrel is tapered and wherein said axially extending groove is partially embodied by said tapered end.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

1,276,082	Kuhn	Aug. 20, 1918
1,608,359	Biason	Nov. 23, 1926
1,760,674	Frantzius	May 27, 1930
1,772,070	Darley	Aug. 5, 1930
2,067,408	Morris	Jan. 12, 1937
2,757,474	Williams	Aug. 7, 1956

April 7, 1959

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Fig. 1

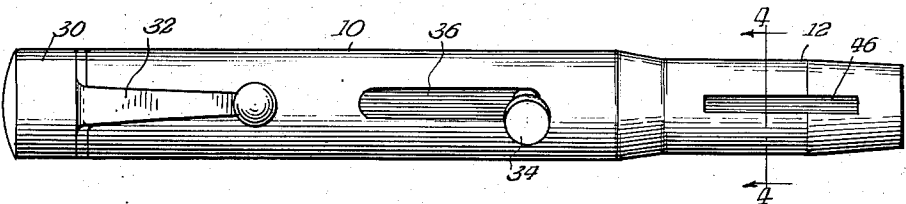


Fig. 2

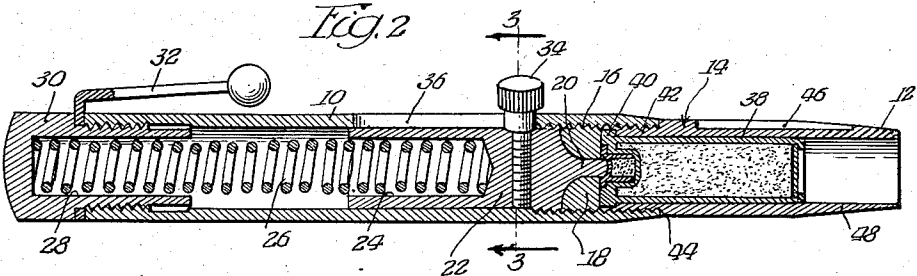


Fig. 3

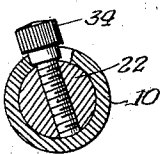


Fig. 4

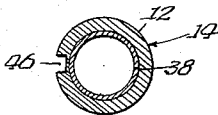


Fig. 5

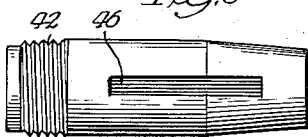


Fig. 7

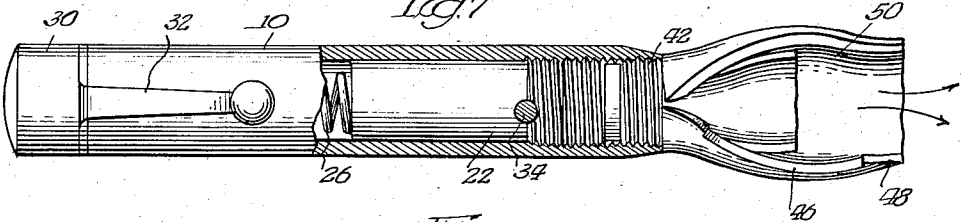
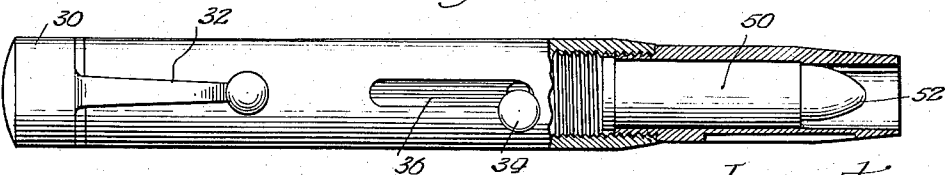


Fig. 6



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